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ABSTRACT

This study determined if the effects of specific training in teaching strategies conducted as a part of the preservice program persisted through the first year of teaching. The subjects were first-year home economics teachers who had been a part of a previous study involving the training. They tape-recorded ten lessons. The variety of teaching strategies exhibited was compared with the variety exhibited as a student teacher. The first-year teachers who had been trained in strategies exhibited significantly more strategies than those not trained. There were no significant differences resulting from the two training methods used. The effects of training in teaching strategies which were evident during the student-teaching period continued to exist among the first-year teachers. The first-year teachers trained in strategies recorded strategies that involved abstract ways of dealing with content and involve pupils more, e.g., reflective, pupil participation, and teacher-pupil planning. (Author/MJM)

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TEACHING STRATEGIES EXHIBITED BY FIRST-YEAR TEACHERS

August 1972

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ABSTRACT

The purpose of the study was to determine if the effects of specific training in teaching strategies conducted as a part of the preservice program persisted through the first year of teaching. The hypotheses tested were:

1. Those who were trained in teaching strategies as a part of their preservice program will exhibit a wider variety of teaching strategies as first-year teachers than those not trained.

2. There is no relationship between the training method used to teach the strategies at the preservice level and the variety of teaching strategies exhibited by the first-year teachers.

The subjects (N=34) were first-year home economics teachers who had been a part of a previous study involving the training. They tape-recorded ten lessons. The variety of teaching strategies exhibited was compared with the variety exhibited as a student teacher.

The first-year teachers who had been trained in strategies exhibited significantly more strategies than those not trained ($p < .05$). There were no significant differences resulting from the two training methods used.

The effects of training in teaching strategies which were evident during the student teaching period continued to exist among the first-year teachers. The first-year teachers trained in strategies recorded strategies that involved abstract ways of dealing with content and involve pupils more, e.g., reflective, pupil participation, and teacher-pupil planning.

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Patricia D. Murphy

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August 1972

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INTRODUCTION

The criticism persists in education that teachers "teach as they were taught" rather than as they were "taught to teach." The teaching patterns identified by Flanders, Bellack, and others in the 1960's are similar to those identified by Stevens in 1912.[1] The training methods used in the recently completed project, Training in Teaching Strategies: An Experimental Project, were successful in varying strategies exhibited by preservice teachers.[2] Two training methods were tested: didactic and eclectic. In the didactic training method, video taped models of teaching strategies were presented to trainees. Trainees then planned lessons and taught, reproducing the strategies in microteaching situations. In the eclectic training method trainees built their own teaching strategies. A control group received no training in teaching strategies. Those trained exhibited a greater variety of teaching strategies while student teaching than those who were not trained although there were no significant differences between the two training methods.

The purpose of this study was to determine if these differences persist into the first teaching job. Is teaching behavior during student teaching an accurate predictor of first-year teaching behavior? Or, are there changes in the variety of teaching strategies used?

In schools the assumption is made that teachers (and teaching) improve with experience (the salary schedule is based, in part, on years of experience). It may be that student teaching is an unreal and contrived experience while the first teaching job represents reality. It may be that the student teaching experience is, indeed, a simulation of reality. It may also be that with increased self-confidence and experience, the teacher becomes more flexible, less controlling, less dominant, and permits more pupil involvement and participation. There are, however, few follow-up studies of graduates of teacher preparation programs other than to determine placement of graduates, job satisfactions, and perceived weaknesses in their undergraduate curricula.

Various kinds of microteaching experiences have been added to many teacher training programs, yet there has been little long-term follow-up to measure lasting effects of such training. Boeck did find behavior changes stable from the time of training in questioning involving microteaching practice sessions to the student teaching period one year

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[1] N. A. Flanders, Teacher influence, pupil attitudes, and achievement, Coop. Res. Monograph No. 12, Office of Education, D/HEW, 1965; A. A. Bellack, et al., The language of the classroom. Teachers College Press, 1966; R. Stevens, The question as a measure of efficiency in instruction: A critical study of classroom practice, Teachers College, Columbia University, Contributions to Education, No. 48, 1912.

[2] P. D. Murphy, Training in teaching strategies: An experimental project. U.S.O.E. Project No. OEG-6-70-0039(509), North Dakota State University, August 1971. ED 055 035 Abstract appended.

later.[3] Would the behavioral changes resulting from the training in teaching strategies be in evidence after a year on the job or have these been, in effect, "washed out" by forces operating within the school system to socialize the new teacher?

This study was designed to provide evidence of actual on-the-job behaviors of first-year teachers to assess the effectiveness of one part of their teacher preparation program. The following hypotheses were tested:

1. Those who were trained in teaching strategies as a part of their preservice program will exhibit a wider variety of strategies as first-year teachers than those not trained.

2. There is no relationship between the training method used to teach the strategies at the preservice level and the variety of teaching strategies exhibited by the first-year teachers.

PROCEDURES

Subjects

First-year teachers (N=34) who had been a part of the earlier experimental project during their preservice program were the subjects for this study. Of these, 10 had been a part of the control group and received no training in teaching strategies, 12 had been previously trained didactically, and 12 had been trained eclectically.

All of the subjects were teaching home economics in secondary schools. Of these, 21 were teaching in North Dakota, 12 were teaching in Minnesota, and 1 was teaching in New York. The enrollment in these high schools ranged from 75 to 5,150.

Data Collection

The variety of teaching strategies exhibited was measured during April and May, 1972. The subjects were asked to tape record ten discussion-type lessons where the teacher and students were interacting verbally. Each lesson recorded was to be at least twenty minutes long. Tapes were marked with an identifying number and were sent to the participants together with a letter explaining the project and instructions for making tape recordings. Tapes (cassettes or reels) were furnished by the Home Economics Education Department and each subject was paid five dollars for each audible lesson recorded (maximum of ten).

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[3] M. A. Boeck, Stability of behavioral change -- One year after precision micro-teaching. Paper presented at American Educational Research Association annual meeting, Chicago, 1972.

Data Analysis

The taped lessons were coded by two project assistants who had been trained in the Joyce coding system (interrater reliability = .88).[4] A 10 percent random sample of lessons was coded independently by a third trained rater (r=.89).

The following procedure was used to compute the variety of strategies score.[5] Each lesson was coded. Coding sheets for each lesson were compared with the teaching strategies operationally defined in the previous study (reproduced in the appendix).[6] Each strategy used was tallied as to the kind of strategy, i.e., lecture, recitation, reflective, etc. The number of different strategies for each subject was totaled. For example, subject 1090 (previously trained eclectically) recorded 1 lecture, 1 recitation, 3 amplified recitation, 2 reflective, 1 prescriptive planning, and 2 pupil participation, for a variety score of 6.

RESULTS

Two sample t tests were used to determine whether or not the differences in the mean scores of the groups with respect to the variety of teaching strategies exhibited could be attributed to chance. The level of significance set for rejection of the null hypothesis was .05.

Summary data are reported in Table 1. The greatest variety of teaching strategies was exhibited by the first-year teachers who had been trained didactically, followed by those trained eclectically. The first-year teachers who were a part of the control group and received no training in teaching strategies recorded the least variety of strategies.

Table 1. Means and Standard Deviations for Variety of Teaching Strategies of First-Year Teachers

How Trained	Variety of Teaching Strategies M	SD
Didactic N=12	4.417	0.954
Eclectic N=12	4.25	0.829
Control N=10	2.9	1.069

[4] B. R. Joyce and B. Harootunian, The structure of teaching. Science Research Associates, 1967.

[5] The procedure was the same as in the original study.

[6] Murphy, 1971, pp. 5-6.

To test the first hypothesis, i.e., there is no difference in the variety of teaching strategies exhibited by first-year teachers irrespective of whether they were trained in strategies prior to student teaching or not, the first-year teachers trained didactically and eclectically were combined into one experimental group. The results of the two sample t tests are reported in Table 2. The hypothesis of no difference was rejected.

Table 2. Tests of Significance for Differences Between Group Means on Variety of Teaching Strategies of First-Year Teachers by Method of Training

Method of Training	t Value	df	p Value
Didactic + Eclectic v. Control	2.369	32	< .05
Didactic v. Control	3.479	20	< .01
Eclectic v. Control	3.259	20	< .01
Didactic v. Eclectic	.463	22	n.s.

The second hypothesis, i.e., there is no relationship between the training method used at the preservice level and the variety of teaching strategies exhibited by first-year teachers, was supported. The didactic method was equally as effective as the eclectic method as measured by the variety of strategies recorded by first-year teachers.

The frequency distribution of the variety of teaching strategies recorded by the first-year teachers according to the training they received in teaching strategies is reported in Table 3. The median number of strategies recorded by both groups trained in strategies (didactic and eclectic) was four. Three was the median of the control group.

Table 3. Distribution of Subjects by Variety of Teaching Strategies Recorded (N=34)

	Number of Different Strategies Recorded					
How Trained	1	2	3	4	5	6
Didactic N=12			2	5	3	2
Eclectic N=12			2	6	3	1
Control N=10	2	1	3	4	0	0

The number of subjects who recorded each of the identified strategies is reported in Table 4. Lecturing remained the predominant strategy although two subjects did not record a lecture. Teacher-pupil planning was the strategy least frequently recorded (by 3 subjects). The first-year teachers who had been trained in strategies not only recorded a greater variety of strategies but they also recorded more of the strategies that are infrequently observed in classrooms. The first-year teachers trained in strategies recorded strategies that involve abstract ways of dealing with content and involve pupils more, e.g., reflective, pupil participation, and teacher-pupil planning.

DISCUSSION

While student teaching the subjects trained in strategies (both didactically and eclectically) exhibited a greater variety of teaching strategies than they exhibited as first-year teachers. The control group, however, exhibited a greater variety of strategies as first-year teachers than they did as student teachers. None of the differences (from student teacher to first-year teacher) were statistically significant. Some regression toward the mean is to be expected (data are reported in Table 5). However, the change exceeds that which can reasonably be attributed to regression.

There is some evidence to indicate that the social and institutional structures in school systems operate to produce uniformity and conformity rather than diversity.[7] Little empirical evidence is available regarding the socialization pressures on first-year teachers. Some evidence regarding the characteristics of school situations and socialization is available from Lundstrom's study of first-year home economics teachers.[8]

The time of the school year in which the study was conducted probably affected the variety of teaching strategies recorded by the first-year teachers. The study was conducted in the latter months of the school year. In some cases the choice of lessons to record was restricted due to final tests, review session, and the build-up of laboratory lessons in food preparation and clothing construction near the close of the school term. However, by this time of the school year the teachers had probably firmed up their teaching patterns.

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[7]See, for example, B. O. Smith, Teachers for the real world. American Association of Colleges for Teacher Education, 1969; P. W. Jackson, Life in classrooms, Holt, Rinehart & Winston, 1968; E. E. Eddy, Becoming a teacher. Teachers College Press, 1969; and S. Dropkin & M. Taylor, Perceived problems of beginning teachers and related factors. Journal of Teacher Education, 1963, 14, 386-390.

[8]K. V. Lundstrom, Situational factors in the school and community and concerns of first-year teachers. Unpublished master's thesis, North Dakota State University, 1971.

Table 4. Frequency and Percentage of First-Year Teachers Recording Each Strategy

How Trained	Lecture		Recitation		Amplified Recitation		Reflective		Prescriptive Planning		Pupil Participation		Teacher-Pupil Planning	
	f	%	f	%	f	%	f	%	f	%	f	%	f	%
Didactic N=12	12	100.0	6	50.0	11	97.67	10	83.33	7	58.33	6	50.0	1	8.3
Eclectic N=12	12	100.0	8	66.67	11	91.67	10	83.33	3	25.00	5	41.67	2	16.7
Control N=10	8	66.67	5	50.00	8	66.67	6	50.00	1	8.33	1	8.33	0	0

Table 5. Means and Standard Deviations for Variety of Teaching Strategies of Subjects as First-Year Teachers and as Student Teachers

How Trained	First-Year Teachers		Student Teachers	
	M	SD	M	SD
Control N=10	2.9	1.07	2.5	1.08
Didactic N=12	4.417	0.95	4.7	1.36
Eclectic N=12	4.25	0.83	4.67	1.54

Teaching involves a triad of elements: teacher, students, and subject matter. What the teacher does is a critical factor in determining what the pupil learns.[9] Gallagher, in reporting his study of productive thinking, stated the teacher is the key in the initiation and stimulation of productive thinking in the classroom.[10] The study reported here gives evidence of the effectiveness of training in teaching strategies in changing teacher classroom behavior. Behavior is altered in the direction advocated by those promoting "thinking" in schools.[11] Nuthall, in a study involving alternative strategies for teaching concepts and the resultant learnings, identified an important problem in concept teaching.[12] He pointed out that it may be difficult or even impossible to separate the teaching strategy from the kind of concept being taught. It may well be that each concept to be taught requires its own particular teaching strategy. To determine if this is indeed true will require an enormous amount of research. However, it would be possible to begin on a less grand scale, that is, determine what effect on student learning these different teaching strategies have.

CONCLUSIONS

The effects of training in teaching strategies which were evident during the student teaching period continued to exist among the first-year teachers. The preservice training continued to influence the behavior of the trainees after a year on the job. The first-year teachers who had been trained in teaching strategies as a part of their preservice program exhibited a greater variety of teaching strategies on the job than those who received no training in strategies.

The teaching behavior of the student teacher is a fairly accurate predictor of the teaching behavior of the first-year teacher with respect to the variety of teaching strategies used. Since some regression toward the mean occurred this probably indicates that "overlearning" is a necessary part of the preservice program if variety of teaching behaviors is desired in graduates.

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[9] B. Strasser, A conceptual model of instruction. Journal of Teacher Education, 1967, 18, 63-74.

[10] J. Gallagher, Problems in stimulating productive thinking of the gifted. Paper read at California Teachers Association, Los Angeles, 1963.

[11] See for example, the work of H. Taba, Thinking in elementary school children. Cooperative Research Project No. 1574, San Francisco State College, 1964; and N. Flanders, loc. cit., 1965.

[12] G. Nuthall, An experimental comparison of alternate strategies for teaching concepts. American Educational Research Journal, 1968, 5, 561-584.

The didactic and eclectic training methods continued to be equally effective in the variety of teaching strategies exhibited. It is the judgment of the investigator in the absence of an, hard data that the didactic training method appears to provide a greater variety of "labels" for both the preservice and inservice teacher than does the eclectic method. The didactic method also provides a basis from which to adapt and develop one's own teaching strategies.[13]

[13]A combination of didactic and eclectic training in teaching strategies has been added to the Home Economics Education teacher training program at North Dakota State University. Observation of both preservice and inservice teachers lends support for the greater versatility of the didactic training method.

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Appendix A

ABSTRACT

Training in Teaching Strategies: An Experimental Project

Patricia D. Murphy
(U.S.O.E. Project No. 0-F-703, Grant No. OEG-6-70-0039(509), August 1971)

The purposes of the study were to determine whether teachers do indeed "know" a variety of teaching strategies well enough to be able to use them or if specific training in teaching strategies is needed, and to determine which of two methods of training preservice teachers to use a greater variety of teaching strategies is more effective.

Teacher education programs traditionally make students aware of the fact that there are different teaching strategies but no deliberate attempts are made to teach strategies to prospective teachers. It is taken for granted that since prospective teachers have been told about a variety of teaching strategies they "know" them. However, observational studies of the classroom have shown that teachers exhibit a very limited repertoire of strategies. It is known that different strategies are differentially effective for certain kinds of learning and for different kinds of learners so the teacher who cannot vary his teaching style is limited.

Hypothesis 1. There is no difference between those trained in teaching strategies and those not trained with respect to the variety of teaching strategies exhibited during student teaching.

Hypothesis 2. There is no relationship between the training method used and the variety of teaching strategies exhibited by trainees during student teaching.

Two methods of training preserivice teachers in a variety of teaching strategies were implemented through a three credit elective course for home economics students prior to student teaching. The trainees learned two observational systems which served as the tools for developing the trainee's skill in the observation and analysis of teaching and provided the framework within which to conceptualize teaching.

The first training method, basically didactic, involved the presentation of audio and video taped models of the teaching strategies to be learned. Four strategies were selected from Joyce's Models of Teaching as particularly relevant to the objectives and structure of knowledge in home economics: an inductive strategy from the work of Hilda Taba, Bruner's concept attainment strategy, Suchman's inquiry training, and Ausubel's advance organizer strategy.

The following procedure was used. A video taped model of the strategy was shown to the students. The taped model depicted a home economics teacher using the strategy with high school pupils. The theory underlying the model was discussed and the phases of the strategy pointed out. The investigator also taught the students using the strategy. Each student planned a lesson using the strategy. Lessons were revised as necessary, then taught to a group of four or five high school pupils, video taped and critiqued. If the strategy was not successfully reproduced it was revised and taught to a second group of high school pupils.

In the eclectic training method trainees learned the same two observational systems. However, no models of teaching strategies were presented. The trainees built their own teaching strategies from behaviors identified on the observational systems. The same microteaching procedure was followed.

The subjects were 84 home economics students who had already taken the traditional methods courses. The subjects in the control group (N=34) received no training in teaching strategies and did their student teaching fall quarter. Those teaching winter quarter participated in the didactic training fall quarter (N=27) while those teaching spring quarter participated in the eclectic training winter quarter (N=23).

The variety of teaching strategies exhibited by the subjects was measured during the student teaching experience. Tape recordings of lessons taught were coded and analyzed for teaching strategies using Joyce's System. Data consisted of the variety of strategies used by each subject.

Both of the groups trained in teaching strategies exhibited a greater variety of teaching strategies than did the control group ($p < .005$). There were, however, no significant differences in the results of the two training methods, i.e., the didactic and eclectic training methods were equally effective in increasing the variety of teaching strategies exhibited by student teachers. It was the investigator's expectation that the eclectic training method would be the more effective one. The evidence did not support this. Attempts to identify an aptitude-treatment interaction were not successful. The experiment should be repeated to attempt to identify variables that may have influenced the results, e.g., the influence of the cooperating teacher, trainees' expectations of rewards, the time of the year, or the assumed homogeneity of the groups.

The study demonstrated that the teaching behaviors of preservice teachers can be changed and their repertoire of strategies increased by providing training in teaching strategies. If teacher education programs are concerned that teachers can teach in a variety of ways and that they use strategies other than lecture and recitation, it is necessary to provide some specific training in other strategies. Merely telling the prospective teacher about other ways of teaching, i.e., inquiry teaching, inductive strategies, or teacher-pupil planning, is not sufficient to enable him to have these strategies as a part of his available repertoire. Opportunities to practice the new behaviors are also needed.

Appendix B

Operational Definition of Teaching Strategies*

For the purposes of this study a teaching strategy was defined as the process of the verbal development of the content or subject matter of the lesson, including what pupil behaviors are sanctioned and how, how and by whom classroom procedures and standards are developed or imposed, and what kinds of responses pupils make.

Teaching strategies were operationally defined from the Joyce System. The strategy used was identified as lecturing when the score on the teacher "delivering information" (I-4)** was greater than 60 percent.

A recitation strategy consisted of a narrow question asked by the teacher, followed by a short response by the pupil. The pupil's response elicits a sanctioning attainment response from the teacher. Then the cycle begins again with another question. Operationally, a recitation strategy is indicated by a score greater than 60 percent on "questioning for precise answers" (I-3). It is accompanied by very high scores on "sanctioning attainment" (S-3) and "student prestructured response" (R-3).

An amplified recitation strategy consisted of the teacher asking a narrow question, followed by a pupil's short response which elicited an attainment sanction. This was followed by the teacher delivering a few comments and asking another question to start the cycle again. The teacher's comments are of a clarifying or expanding nature on the pupil's response or delivering information relative to the next question to be asked. This strategy was defined as scores of 50 percent $\pm$ 5 percent on "questioning students for precise answers" (I-3) and "delivering information" (I-4). Like the recitation strategy, it is accompanied by high scores on "sanctioning attainment" (S-3) and "student prestructured response" (R-3).

A reflective teaching strategy is defined by Hunt and Joyce as one which utilizes the learner's frame of reference to encourage questioning or hypothesizing.*** They have operationally defined reflective teaching as scores greater than 10 percent on "helping students theorize" (I-1) and "helping students toward self-expression" (I-2). Reflective teaching is accompanied by high scores on "sanctioning search behavior" (S-1), "sanctioning self-expression" (S-a), and "student original response" (R-1).

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*Taken from P. D. Murphy, Training in teaching strategies, 1971, pp. 5-6.

**Refers to categories of the Joyce System.

***D. E. Hunt, and B. R. Joyce, Teacher trainee personality and initial teaching style, American Educational Research Journal, 1967, 4, 253-259.

Flanders' rule of two-thirds states that teachers do two-thirds of the talking in the classroom. A teaching strategy in which pupils do more than their one-third share of the talking is identified as pupil participation. When the ratio of pupil talk to teacher talk was greater than 1:2 the strategy was designated as pupil participation.

Prescriptive planning is the name given to the strategy in which the teacher imposes plans or standards, either his own or those of an authority. Scores greater than 28 on "imposing a plan or procedure" (P-3) and "imposing a standard of performance" (P-4) are designated as prescriptive planning.

Cooperative or teacher-pupil planning is the term used to designate the teaching strategy in which the teacher tries to involve the pupils in helping determine the plan, procedure, or standard (P-1 and P-2). Scores greater than 10 on P-1 are indicative of teacher-pupil planning.